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HISTORIC AMERICAN ENGINEERING RECORD

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HAER No. PA-61

Dorrance Colliery Fan Complex: 1884, 1908, Ca. 1930 HAER No. PA-61
Lehigh Valley Coal Company
South Side of Susquehanna River at
Route 115 and Riechard Street
Wilkes-Barre
Luzerne County
Pennsylvania

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PA 61-1 EXTERIOR VIEW OF NEW FAN HOUSE AND HILLMAN FAN HOUSE LOOKING NORTHWEST

The building on the left, the New Fan House, houses a Corliss steam engine which powered a Buffalo Forge Company single inlet Duplex Conoidal centrifugal exhausted fan through a metal updraft chimney. Part of the brick airway leading to the Baltimore shaft is visible to its right rear. The Hillman Fan House, on the right, houses the 1883 double inlet Guibal fan. The south entry, the curve of the fan housing, and brick updraft chimney are visible in this view.

PA 61-2 EXTERIOR VIEW OF NEW FAN HOUSE AND HILLMAN FAN HOUSE LOOKING NORTHEAST

The New Fan House is in the foreground; the metal fan housing and updraft chimney are attached to the north side. The Hillman Fan House is in the background; the brick airway, fan housing, and updraft chimney are visible.

PA 61-3 EXTERIOR VIEW OF HILLMAN FAN HOUSE LOOKING NORTH

The airway, with sloping concrete roof, is in the foreground. Two periods of construction are evident. In the center of the wall, to

the left of the window, is a cover over the air velocity indicator. The building houses a 35 foot diameter cast iron and wood Guibal centrifugal fan. The curve of the fan housing with its iron roof are in the middle ground, and the rectangular upshaft chimney is in the background. The brick, metal, and concrete building was designed to be fireproof. The metal upshaft chimney of the New Fan House is to the left.

PA 61-4 EXTERIOR VIEW OF HILLMAN FAN HOUSE LOOKING NORTHEAST

This view shows the concrete roof covering the airways and the engine room. The reinforced concrete roof is supported by metal beams. Note how the airshaft, in the foreground, widens to create an airway on either side for the double inlet fan. The brick fan housing is capped by a curved sheet metal roof whose segments are bolted together. The brick updraft chimney, capped with concrete, is to the rear (northeast). Also evident on the wall is the cover over the air velocity indicator. The Hollenback Cemetery, which adjoins the Dorrance Colliery property is in the background.

PA 61-5 EXTERIOR VIEW OF HILLMAN FAN HOUSE LOOKING NORTHWEST

The airway, with its airlock entryway is in the foreground. Note the concrete foundation, steps, and sidewalks. The curved fan housing and edge of the iron roof are incorporated into the upshaft chimney; the lighter colored brick in the western section indicates either a modification or expansion of the chimney. The interior curve of the chimney is evident in the upper section of the right (east) wall of the chimney.

PA 61-6 EXTERIOR VIEW OF HILLMAN FAN HOUSE LOOKING WEST

The engine house is on the right. The end of the 1883 Pittston Steam Engine cylinder head and steam chest is visible in the doorway. Although its stairs are missing, the iron framing of a porch stands in front of what was a doorway. The entrance door to the north airlock is visible inside the enlarged window. The end view of the upshaft chimney shows the brick ribbing for support, the brick corbelling, and concrete capstones.

PA 61-7 EXTERIOR VIEW OF BALTIMORE FAN HOUSE, AIRWAY, AND HILLMAN FAN HOUSE
LOOKING SOUTHEAST

The roof of the 1908 Baltimore Fan House is to the left; the doorway opens onto the rear of the metal fan housing. In the immediate foreground is a section of the blast doors installed in the airway directly over the shaft to protect the fans in case of a mine explosion. The sloping airway, to the right, connects with the New Fan House, whose metal updraft chimney is evident in the right background. The engine house of the Hillman Fan House is in the left background with the fan housing and updraft chimney connected. The boiler house stack is in the background. All of the engines in the fan complex were powered by the boiler house.

PA 61-8 EXTERIOR VIEW OF BALTIMORE FAN HOUSE LOOKING NORTHEAST

The engine room and south airway are in the foreground. The brick walls covering the fan housing and brick upshaft chimney are in the background. The engine room, fan housing, and airways are covered with reinforced concrete roofing. In the left foreground is an airlock leading into the airway.

PA 61-9 EXTERIOR VIEW OF BALTIMORE FAN HOUSE LOOKING NORTHEAST

The brick and concrete construction of the engine room, airways, and chimney are evident. The shaft housing and flywheel of the Allis-Chalmers Corliss steam engine are visible through the window of the engine room.

PA 61-10 EXTERIOR VIEW OF STONE RETAINING WALL, AIRWAY, BALTIMORE FAN HOUSE
AND HILLMAN FAN HOUSE LOOKING EAST

The stone retaining wall encloses a pit which may have been the original site of the Hillman Fan House steam engine. The concrete foundations in the left foreground are more recent (c. 1930) additions which may be supports for a porch or stairway. The sloping airshaft, in the middle ground, connected the Baltimore shaft to

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the New Fan House (not shown) and Hillman Fan House in the background. The Hillman engine house is on the left.

PA 61-11 EXTERIOR VIEW OF NEW FAN HOUSE LOOKING EAST

The airway (on the left) leads from the Baltimore shaft to the New Fan House. The metal housing (center foreground) encases a single entry Duplex Conoidal fan, made by the Buffalo Forge Company. The Duplex Conoidal fan had two parts: a disk fan which drew air up the airway and a centrifugal fan set at a right angle to it which exhausted the air. The engine house (on the right) contains a direct connected Corliss engine.

PA 61-12 EXTERIOR VIEW OF NEW FAN HOUSE LOOKING WEST

The engine room with the cylinder head of the Corliss steam visible through the open door is on the left (south). The metal updraft chimney is in the center and part of the airway, with a door leading into an airlock, is on the right.

PA 61-13 INTERIOR VIEW OF HILLMAN FAN HOUSE LOOKING NORTHEAST

This view, taken in the southern airway, shows the circular brickwork surrounding the air intake, the cast iron shaft support, and one of the 1883 Guibal fan cast iron spiders. Three cast iron spiders support the ten feet by eleven feet wooden paddles. Remnants of the catwalk with its screen grating lead to the inner door of the airlock. Note also the support beams and reinforced concrete roof. The concrete floor of the airway has deteriorated.

PA 61-14 INTERIOR VIEW OF HILLMAN FAN HOUSE LOOKING SOUTHEAST

This view of the north airway shows the shaft support, bracing, and shaft coupling of the 1883 Guibal fan. The shaft was direct connected to the steam engine. Behind the circular brickwork are the

cast iron spiders to which the supports for the wooden paddles are attached. One of the ten feet by eleven feet paddles is visible above the shaft in the center of the photo. Remnants of the catwalk, under the shaft, lead to the inner door of the catwalk. The catwalk was used by the men who oiled the shaft bearings.

PA 61-15 INTERIOR VIEW OF HILLMAN FAN HOUSE LOOKING WEST

The No. 2 (Hillman) shaft is on the other side of the rail barrier. In the background are the ventilating doors leading to the airway from the No. 4 (Baltimore) shaft. The brick wall on the left is pointed; it splits the air directing it to both sides of the double inlet Guibal centrifugal fan. The concrete rail support also is pointed to reduce air resistance. The rails are recycled light guage mine railroad tracks. The alterations to the fan house are evident in the left background, where a sloping joint between the concrete and brick suggests an earlier roof pitched the other way.

PA 61-16 INTERIOR VIEW OF HILLMAN FAN HOUSE ENGINE ROOM LOOKING EAST

This overview of the 1883 Pittston Engine and Machine Company steam engine includes the flywheel and pillowblock in the foreground, with the shaft and cylinder in the background. The engine is a horizontal, slide valve type of 30 inch bore and 60 inch stroke that turned the fan at 49 revolutions per minute.

PA 61-17 INTERIOR VIEW OF HILLMAN FAN HOUSE ENGINE ROOM LOOKING EAST

The direct-acting 1883 Pittston Engine and Machine Company steam engine was made by George A. Parrish and W. B. Culver of West Pittston, Pennsylvania.

PA 61-18 INTERIOR VIEW OF BALTIMORE FAN HOUSE ENGINE ROOM LOOKING EAST

The flywheel of the 1908 Allis-Chalmers Corliss steam engine and flywheel are in the foreground. The engine is a horizontal slide

valve type with a 24 inch bore and 48 inch stroke. It was direct connected to the Dickson Guibal fan which rotated at 69 revolutions per minute.

PA 61-19 INTERIOR VIEW OF BALTIMORE FAN HOUSE LOOKING NORTHEAST

This view of the south airway shows the circular brick opening through which air was drawn to the center of the 28 foot diameter Dickson Guibal double inlet fan. Note the solid core of the Dickson-Guibal centrifugal fan and the bracing for the steel paddles. The shaft, shaft support and braces, and catwalk are in the right foreground.

PA 61-20 INTERIOR VIEW OF NO. 4 AIRWAY AND NEW FAN HOUSE LOOKING SOUTH

The No. 4 (Baltimore) shaft would be directly behind the viewer. The ventilating doors leading to the Hillman Fan House are to the left. The floor of the airway, once covered with concrete, has deteriorated. In the background is the metal disk fan, part of the Duplex Conoidal Fan installed in the New Fan House. The ladder provides access to the shaft bearings.

PA 61-21 INTERIOR VIEW OF NEW FAN HOUSE LOOKING SOUTH

The single entry Duplex Conoidal fan had a disk fan, pictured here, which drew air from the No. 4 (Baltimore) shaft up the airway into a centrifugal fan (see PA 61-22) and out the upshaft chimney. The ladder provided access to the shaft bearings; the mesh screen was a safety feature. The door to the left leads into an airlock.

PA 61-22 INTERIOR VIEW OF NEW FAN HOUSE UPSHAFT CHIMNEY LOOKING WEST

The Duplex Conoidal Fan is a single entry disk fan (see PA 61-21 and PA 61-22) which drew air from the No. 4 (Baltimore) shaft up the airway through the cone, seen on the right, into the centrifugal fan, pictured here. The curved metal blades forced the air from the

center of the fan to the tips of the blades and out the sheet metal exhaust chimney.

PA 61-23 INTERIOR VIEW OF NEW FAN HOUSE ENGINE ROOM LOOKING EAST

The flywheel, shaft, and coupling of the c. 1930 Buffalo Forge Corliss engine are shown.

PA 61-24 INTERIOR VIEW OF NEW FAN HOUSE LOOKING SOUTHWEST

A section of the cylinder, parts of the Corliss linkages, and the shaft are shown.